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(The Organ of the Mysore Agricultural and Experimental Union)

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IN THIS ISSUE

Speech delivered by

THE HON. MR. L. SIDDAPPA, B.A., LL.B.

Minister for Agriculture and Public Works

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Vol. XXV] 1946—47 [No. 4

Speech delivered by the Hon. Mr. L. Siddappa, B.A., LL.B., Mnister for Agriculture and Public Works, at the 27th Annual Conference of the Mysore Agricultural and Experimental Union, held at Somanahalli, Maddur Taluk, on the 2nd March 1947.*

In matters agricultural I cannot justifiably claim very deep insight as those of you experts who have hailed from various parts of the State to this Conference. But I can well claim this much—that as one born, bred and brought up in a family of agriculturists, I do possess an intimate knowledge of the agricultural practices of our raiyats and also of the trials and tribulations of the cultivators of the soil.

It is beyond dispute that to-day all over India, including Mysore, agriculture is not as remunerative an occupation as it might well be. More than three-fourths of the people reside in rural areas. Of this, over 85 per cent. till the soil as their main occupation. Their prosperity or adversity depends on the condition of agriculture.

Unfortunately, in this country, we had not, till recently, taken adequate interest in the basic importance of agriculture. As a result of this sad neglect, the food problem in the land became acute in the last four or five years, culminating in the devastating Bengal Famine of 1943, which took a heavy toll of precious human lives. I need hardly recall how critical the food position had deteriorated in several parts of India, including Mysore. Even to-day we are not yet out of the wood. This woeful situation has been the cumulative result of our carelessness regarding agricultural methods and practices. More than ever, it is now necessary to bestow increased attention to agricultural improvement. The general living standards are miserably low. Every one needs adequate and nutritious food, enough clothing and sanitary housing accommodation. If the common man is to attain these

* In reply to the speeches that follow of the President and the Vice-President of the Union.

life's essentials the general standard of living has to be raised. It is calculated that the average annual income per head in this country is only 65 rupees. Compare this with the corresponding figure for the progressive countries of the West. This figure ranges from Rs. 800 to Rs. 1,200. I leave it to you to conjecture the condition of our people with the low standard of life. Thus, both for the very existence and for the well-being of our people, we have perforce to devote greater attention to the task of resuscication of agriculture.

It is a very encouraging sign that this vital question is attracting the attention of the leaders and administrators in our country. The defects of our agricultural system, the methods followed in the West for improving agriculture and the extent to which those methods may be tried locally, all these matters have been engaging the attention of our administrators and scientists. But, there is the time-lag. Sufficient time has to elapse for allowing applied science to revivify our agriculture. The essential requisites for making mother-earth to yield rich crops are irrigational facilities, better seeds, manures and agricultural implements.

Government have never lagged behind in providing irrigation facilities. Mr. Malliah has said in his speech that eleven lakhs of acres have come under irrigation in the State, tanks, nalas and all sources included. During the war years perhaps it was not possible for the Government to undertake large projects; but after that projects large and small have been sanctioned as you know. Thirty-six projects have been started during the year 1945–46; 4 at a cost ranging between Rs. 34,000 and Rs. 50,000; 9 estimated between Rs. 50,000 and 1,00,000; 3 between 1,00,000 and Rs. 1,50,000; 2 between Rs. 2,00,000 and Rs. 3,00,000; 7 between 3,00,000 and Rs. 4,00,000; 4 between Rs. 4,00,000 and Rs. 5,00,000; one estimated from Rs. 5,00,000 to Rs. 6,00,000; one estimated at Rs. 1,05,700; another estimated at Rs. 28,30,000 and the last estimated at Rs. 29,07,000. The total estimate of these comes to Rs. 1,45,37,023 and by the end of 1946 work has been done to the value of Rs. 1,07,78,422. Some projects have been completed providing water to about 50,000 acres. When all these projects have been finished 61,345 acres will have come under irrigation. A few projects have been sanctioned since June 1946, the important among them being the Lakkavalli Project in the Tarikere taluk estimated at about Rs. 9 crores; the Tunga Project near Sakrebyle in Shimoga taluk estimated at Rs. 70 lakhs; and the Nugu Project in the Mysore District estimated at Rs. 81 lakhs. Two lakhs of acres will be brought under irrigation when these projects are completed.

The Government have not only attended to the construction of new tanks and channels but have arranged for the repairs of the existing smaller tanks as well. During 1945–46, 5 lakhs of rupees were spent for these repairs. Ten lakhs of rupees have

been earmarked for renovating the minor tanks during the current year. There is a ten-year plan estimated to cost 2 crores of rupees for bringing into order 400 tanks a year. In addition to the existing Ranges for the restoration of minor tanks, 7 more Ranges will be formed from June 1947.

In the Maidan districts, it is not possible to start major irrigation schemes and so to afford facilities to the raiyats to sink irrigation wells, Government sanctioned Rs. 7,00,000 for 1945–46 and Rs. 5,00,000 for the current year. These amounts having been found inadequate, an additional sum of Rs. 10,00,000 was sanctioned in January last. According to the reports received by Government this sum has been distributed among 3,237 applicants; 2,524 well works have been completed and 604 works are in progress.

Four Orders of Government have been issued since November 1945 to grant certain concessions to those indenting for electric energy to work irrigation pumps. Power has since been supplied to 224 irrigation pumps. The total number of irrigation pumps in the State stands at 918 at the present moment.

Arrangements have also been made to increase the supply of good seeds, manure and ploughs through Government depots. To those raising food crops under the "Grow More Food" Scheme Government have supplied seed and manure at concession rates and this concession costs Government an annual outlay of Rs. 10 lakhs.

As many of you know, Government have also just sanctioned various comprehensive post-war plans relating to agriculture. Most important of these plans is the Five-Year Plan for raising and distributing seed paddy. According to this plan, seed paddy will be raised in about 12,000 acres in a five-year period and the seed so raised will be distributed for use in 2½ lakhs of acres. It is anticipated that if this plan is worked out thoroughly, Mysore's rice deficit will be wiped out.

Yet another scheme—a scheme for the supply of manure to the raiyats at concession rates,—has been sanctioned. It is contemplated to start a fertiliser factory at an estimated cost of nearly Rs. 3 crores in view of the apparent difficulties of imports. In addition to artificial manures, cattle manure may also be used and its fertilising content improved. This aspect has been succinctly emphasised by Mr. F. L. Brayne (who worked with great zeal in the cause of rural development in the Punjab) in his books, specially in the one entitled "Socrates in an Indian Village". To encourage the manufacture of compost-manure, sanction has been accorded to another scheme for the grant of a subvention of Re. 0–12–0 per ton of such manure produced by the raiyats.

A further scheme relates to the supply at concession rates of improved ploughs, iron mills, pans and Persian wheels. According to this scheme, it is intended to supply 1,00,000 ploughs spread

over five years. With a view to successfully implementing this scheme, the question of extending the Implements Factory at Hassan is under consideration. I am glad to note that raiyats have evinced intelligent interest in the use of modern machinery. This welcome change has come to the notice of Government. Government have arranged for the import of 50 tractors for being used along with the tractors already with the Agriculture Department. It is expected that these additional tractors from abroad will reach us by the end of the year. From next year onwards, these tractors will be distributed for use all over the State at the rate of 5 tractors for a unit area. The hire charge has been reduced from 12 to 8 rupees per acre on the suggestion of prominent raiyats. Some raiyats have pleaded that tractors may be obtained for their exclusive use and ownership. The Director has been instructed to render help to them in this regard.

It has been suggested that the number of Demonstration Farms should be increased in the State. As you know, some of these Farms are already existing in some parts of the State. But, admittedly, their number being insufficient, Government have sanctioned a scheme for the establishment of one Demonstration Farm in every taluk and five Regional Farms. There is need for qualified officers for pushing through such schemes. As the standard of instruction in the Hebbal School is not high enough, a full-fledged Agricultural College has been started in Bangalore. Besides these two institutions, there are several agricultural schools imparting instruction in the Kannada medium. The number of these schools has been increased recently.

We, in Mysore, are greatly beholden to the Dewan, Sir A. Ramaswami Mudaliar, for his sage advice and encouragement in the promotion of agriculture. No one working with the Dewan and in receipt of his peerless co-operation could fail to come under the magic spell of his dynamic personality. While dwelling on such matters which touch the hearts of the subjects of the State, thoughts fill our minds when we recall the affection and solicitude of our gracious Sovereign, His Highness the Maharaja, towards his people, specially towards the folks of the rural areas. With such innate sympathy one feels doubly assured that the development schemes before us will come to early fruition.

Government have undertaken the responsibility of affording the necessary financial assistance to operate all these schemes. The responsibility to work them all lies with the Officers of the Agricultural Department. When I say "Officers of the Agricultural Department" I am not thinking in terms of the higher officers only. I am referring to all the officers without exception —from the Director down to the lowest officer in the rung. Every officer should set about his duties realising that he is engaged in the sacred task of providing vital food for the teeming millions of this land. Every one should work with the patriotic zeal that

our country should quickly line up with other progressive nations. A new feeling should surge in our being to assist this high endeavour. It is my earnest desire that the personnel of the Agricultural Department should function with this new idealogy. The Departmental personnel should rise above the criticism that they do not mingle with raiyats and bring home the benefits of scientific knowledge. Some of our eminent scientists have made useful discoveries. But, the raiyat is yet to benefit from these discoveries, either because those who are responsible for popularising them have not yet done so, or because they have not done their work satisfactorily. It is my personal belief that cultivators will not be able to follow modern methods of agriculture, unless the work of propaganda and demonstration is done on a more extensive scale. An instance in point is the demonstration of the method of preparing compost manure at the Agricultural Section of the annual Dasara Exhibition at Mysore and at the District Conferences held at the headquarter towns. Lakhs of raiyats see the demonstration and still how many of them have put anything like it into practice when they returned to their villages? Few indeed! I have stressed that when one method of propaganda fails in its purpose a more effective type should be adopted in its place. Further along with the propaganda or instead of it, the Agricultural Inspector and the Fieldman of the Taluk, securing the assistance of the Revenue Inspector and the Gramasudharakas through the good offices of the District Development Officer should get manure pits prepared in the selected Hoblis according to a set programme and train the raiyats in the method of preparing improved manure. If the villagers have failed to take up to these improved methods, pressure must be brought to bear on them through the village leaders and in any event they must be induced to adopt the improved method. In my tours I have instructed District Officers and Agricultural Inspectors that they should bring into vogue this method of propaganda and demonstration on the spot. I hope they will do it.

Referring to the objection that illiteracy of the raiyat is a block in the way of the improvement of agriculture, Rai Bahadur D. N. Mitra, a Retired Officer of the Bengal Department of Agriculture, has said in an article on Agricultural Education and Propaganda in villages:

> "It is also very loosely said that the illiteracy of the cultivator is another obstacle in the way of the improvement of agriculture in India. But, in this case also, one should take a more lenient and liberal view. He may be illiterate, he may not know how to read and write, but he is intelligent and clever enough to know his business well, to understand things if they are put before him in an understandable manner and to adopt new methods if these are properly demonstrated and explained to him. He will not be slow to adopt a new

crop or a new method if he is convinced that it will be profitable to him and he has the means and facilities to adopt it. The extent to which new strains of various crops—sugarcane, wheat, rice, pulses, tobacco, etc., and new crops like the English vegetables are being cultivated in recent times will bear testimony to his intelligence and capacity to adopt new ideas and methods. Mollison and Sly very truly said 'When the Indian farmer has been given an object lesson clearly demonstrating the value of the innovation, he is by no means slow to appreciate the results'. Opinions of many other experts who studied the psychology and the conditions of the Indian cultivator may be quoted to show that he is not slow to adopt new methods due to his so-called and much talked-of conservatism and illiteracy. The chief thing to be remembered in this connection is that to win the cultivator's confidence one should interest himself in his point of view. One must attempt to reconcile the triangular conflict between the man, the land and the animal. The greatest tragedy again is that the cultivator's confidence in the experts has been violently shaken and shattered in the past by their own actions in many cases. As someone has said: 'The Agricultural Officer distributed the necessary materials just after the fair, either because he did not receive the stock or because he did not receive any orders from his superiors. The Ammonium Sulphate was distributed as and when the Agricultural Department had stocks but not as and when the ryots required it'. There is a legion of such instances coupled with instances in which seeds, manures, etc., were recommended and supplied without any regard to the suitability of soil or climatic conditions. In many cases again, improved strains of crops were recommended which proved inferior to the local varieties at a very great cost to the cultivator."

An instance of this kind which occurred in our State has come to my notice. A certain official without exercising the requisite amount of care happened to distribute in a locality a particular variety of summer seed Ragi for being sown in monsoon season. Naturally, the crop failed and there was a furor among the agriculturists of the locality. I wish the Departmental men had appeared *in-cognito* either in shandies or in the assemblage of agriculturists where they could have heard the ridiculing comments that the seeds supplied by Government are thoroughly useless and never should seeds from Government Departments be used. Once the Departmental personnel commit an error, the raiyats lose confidence and even the very good work turned out by officials will prove of little use in the ultimate.

I will be failing in my duty if I do not express a few remarks about your Union which was started in 1918–19 through the endeavours of Dr. Coleman, who was the then Director of Agriculture.

Since then the useful work of this Union has been indeed laudable. The growth of the Union membership from a negligible figure to about 3,000 and the large circulation of the monthly magazine issued by the Union, testify to the enthusiasm of the Union Executive Committee. I would, however, request you not to rest snug on your past laurels, but open up branches in every district, taluk and hobli and enrol as large a number of raiysts as members. I need hardly stress the importance and usefulness of institutions of this kind. The Union serves as the connecting link between the Department and the cultivators. After the branches expand numerically the sale of seed, manure and implements—at present carried through Government Depots—could be advantageously done through these new channels also. Further, additional activities, calculated to enlighten the raiyats may also be initiated.

Experts have computed that for every hundred rupees worth of produce, the raiyat secures scarcely 60 rupees, the remaining being pocketed by ubiquitous middlemen. Therefore, "Producers' Co-operative Societies" should be organised through the agency of the branches of the Union, so that the raiyat could be helped to obtain full value for his arduous labours. At present, the raiyat purchases his daily requirements as well as implements at artificially inflated price. Instead, the branches could purchase for him these necessary articles at fair prices.

It is imperative that officials should perform their duties with zeal and sincerity of purpose if agricultural development schemes should bear fruitful results. This does not wholly imply that the schemes will fructify only if Government and its functionaries do their work. I should like to lay stress that in this great work the co-operation of public leaders as well as the people is essential. I may recall that the Indian Famine Relief Committee considered that co-operation between Government and people is a *sine quo non* for the success of Government measures of this kind. This aspect was rightly emphasised by no less a person than Dr. Rajendra Prasad, the Minister for Agriculture in the Interim Government, in one of his recent utterances.

Before I conclude let me exhort the Officers of the Department to do all they could to discharge their functions effectively and with a high spirit of responsibility towards our humble raiyats.

I thank you all sincerely once again and wish your Union great strength and prosperity in the glorious future ahead.

Speech by K. H. Sreenivasan, M.A., B.Sc. (Edin.), Director of Agriculture, at the Field Day of the Union, held on 2–3–1947, at Somanahalli.

On an occasion like this, it has been customary for the President to make a brief resume of the activities of the Union. I would like to depart from this established practice and leave that to the Vice-President. Instead, I would place before this assembly, some salient features of the Departmental work, what it has achieved so far and what remains to be achieved, so that I may have the benefit of your considered opinion and enlightened support in all our activities.

Though the war was over nearly eighteen months ago, the primary problem of acute shortage of food is still facing us. We cannot always depend upon imports and even if we can, it is not desirable. We, in Mysore, have ample resources and facilities to produce all the food we need and with your hearty co-operation, our State can become self-supporting in regard to this primary commodity.

Our department was one of the earliest to launch a GROW MORE FOOD CAMPAIGN. You will recall that as early as 1941 we had launched a scheme for stepping up our production of paddy. During the short period during which the campaign has been in operation, we have been able to record considerable increases in the gross outturn per acre.

In addition to the extension of the cropped area which the Revenue Department has been promoting, we undertook a unique scheme which is perhaps the only one of its kind in India. The fall in the level of the Krishnarajasagara last year was a calamity of the first magnitude but we turned it into an opportunity and tempered the effects of the disaster by bringing a large portion of the water receded areas under cultivation and sowing it to jola.

Last year, with a view to augment the very slender resources of the State in regard to food supply, our benign Government extended very liberal concessions for growing paddy and *kar* ragi. These were availed of freely by the ryots. I hope that similar concessions will be extended this year also by the Government. It will not be out of place if I may suggest, in this connection, how our Union members can help the Government in their arduous task of procuring more food grains. I may quote the splendid example of the Mandya Taluk Committee who under the able chairmanship of Mr. S. C. Malliah made our *kar* ragi campaign a roaring success. I earnestly hope that all the other Hobli and Taluk Committees will emulate their example and extend their hearty co-operation to the Department. It is inter-

esting to reflect in this connection how a co-ordinated effort by all those concerned, *viz.*, the agriculturist, the Revenue Department and the Irrigation Department and our own Department could produce notable achievements like the Kar Ragi Campaign. My special thanks are due to the Irrigation Department and Mr. Thipperudriah, the then Deputy Commissioner.

We have distributed during the past four years seeds valued at Rs. 6,28,821, manures of the value of Rs. 27,31,429 and implements worth Rs. 41,39,287. But we are not satisfied with the results. Due to circumstances beyond our control, we have not achieved as much as we wanted to.

Last year, owing to the failure of the monsoon and other causes, the Department had to face a lot of difficulties in regard to procurement of good seed. In spite of these difficulties, the Department was able to distribute seeds of the value of Rs. 1,52,896. In consonance with the desire expressed by the members of the Representative Assembly and other public leaders, attempts have been and are being made to procure enough seed paddy for sowing this summer. We have also procured 1500 pallas from Madras Presidency. Much more seed could have been brought in from this province, had it not been for the untimely rains we had in November and December and consequent dislocation of traffic. Added to this, the Madras Government withdrew their permission for export, just at a time when despatch arrangements had been completed.

Again, in regard to manures, particularly groundnut cake, the Department has not been able to procure as much as it wanted. All the same we were able to distribute about 6,797 tons of groundnut cake and about 1,885 tons of fertilisers. In order to ensure adequate and equitable distribution of manures, it is contemplated to build large godowns in about 12 centres at a cost of Rs. 2 lakhs and store the stuff as and when they become available. It is also hoped that the concerned authorities will make arrangements for proper allocation of groundnut cakes produced in the State to all the consumers, *viz.*, Agricultural Department, Sugar Factory and licensed dealers.

For successful crop production, fertilisers should be applied only in association with bulk manures. Most of our soils are poor in organic matter and require fairly large applications of farmyard manure and compost. We have therefore undertaken a large-scale propaganda for converting town wastes into rich compost. So far, 36 municipalities have undertaken this work and are producing 50,000 tons. Much of the production is eagerly taken up by the ryots. In fact, the demand for this stuff in Malavalli and Maddur areas is so keen that the municipalities are making a tidy income out of sale of compost. Attempts are being made to encourage even small villages to undertake compost schemes.

Another cheap and efficient method of supplying the much needed organic matter is the growing of green manures. This practice is not very common in the State except in the Channel districts, and in the tank districts of Kolar and Tumkur. Extension of the practice to all parts of the State is very desirable and a beginning in this direction by way of supply of green manure seeds at concession rates will be made very shortly. Green manures on dry lands have given wonderful results and research in this regard is in progress.

We have distributed implements of the value of about Rs. 16 lakhs during the past year. As the company with whom we had placed an order for a lakh of Mysore mammoties was unable to supply, our Government is taking up the matter with the Government of India to obtain our quota from the Tatas. We have supplied fifteen *rahats* to the ryots so far and as there is an increasing demand for them, the question of getting them made at the Implements Factory at Hassan is being considered.

The supply position of wooden materials has not been happy. I am assured by the Chief Conservator of Forests that he is arranging to release Honne and Nandi materials in place of teak if the ryots would have them as the supplies of teak have shrunk very much.

The Tractor Service which was maintained as part of the Grow More Food Campaign has not come up to our expectations, mainly because of want of spares. Even after 18 months after the close of the war, the position has remained unchanged. Recently, we received 9 tractors but as necessary agricultural implements were not available, they could'nt be put on the field. We are getting some of the equipment manufactured at Bhadravati and if they are found satisfactory, we shall be in a position to put all the tractors into service very soon.

I wish to say a few words about the control of pests and diseases of crops. It has been amply proved that many of the common fungoid diseases can be eradicated by an application of Bordeaux mixture. As an instance of practical application of scientific knowledge, I may quote the widespread adoption of spraying against Koleroga of areca and coffee. Much of the havoc caused by minor pests and diseases affecting crops can be minimised or altogether eliminated by taking early precautionary measures. Timely sowing and planting operations in many cases will eliminate infection of diseases. The Jola earhead bug which affects jola to a considerable extent can be controlled by sowing early, *i.e.*, in Revati rains. In some instances, disease-resistant varieties alone should be used. The paddy blast—Benkiroga, which is a serious disease on paddy can be avoided by growing resistant varieties like Ratnachudi. The Helmenthosporium disease on ragi can be controlled by spraying or dusting with sulphur in the nursery or seedling stage. Jola smut which is a

seed-borne disease can be controlled by soaking seeds in copper-sulphate solution. Packets of copper-sulphate are kept for sale in all the agricultural depots.

The Department has always been on the alert and rendering active and quick assistance in the control of pests and diseases. Last year, a paddy pest known as Leptispa appeared on a large scale in the Malnad districts. Fortunately, with the hearty co-operation of the cultivators and the Revenue Department, we were able to bring it under control in a very short time.

In the control of pests and diseases, information of the appearance of pests, etc., should be given to the Department immediately. It is very unfortunate that such information is delayed by our ryots. If timely information is not received, the pests and diseases develop into a great magnitude and control by known methods becomes difficult. I earnestly request our ryots to report immediately to the nearest Agricultural Officer, the appearance of pests and diseases on crops. As it is necessary to have a special staff in every district which can devote its entire attention to watching the appearance of pests and diseases, and taking timely control measures, it is contemplated to have in each district, as nucleus of a future Plant Protection Service, Plant Protection Assistants under the Assistant Director.

And now, let me tell you what we propose to do in the Post-War period in regard to development of Agriculture.

We have about 18 post-war schemes, several of which are already under the active consideration of the Government. The following schemes are given high priority.

1*st Priority*.—Multiplication and distribution of improved strains of paddy seeds and issue of manures at concession rates, distribution of implements, manufacture of compost.

2*nd Priority*.—Tractor service and Mechanisation.

3*rd Priority*.—Experimental and Demonstration Farms.

4*th and Subsequent Priorities*.—Reorganisation of Statistical Section, breeding of root crops, etc.

Of these, we have already given effect to some schemes. We have started an Agricultural College to train the required personnel. Arrangements are being made to start 5 regional farms in Chamarajanagar, Arsikere, Arakalgud Taluks and in Anandapuram and Markendeya areas. A scheme for the distribution of improved seeds and fertilisers will be put in operation shortly.

In the post-war period, tractor service is one which is likely to play a very great part in ameliorating the hardships caused to many of the smaller ryots for want of efficient bullocks which are becoming scarcer and costlier day by day. We have drawn up suitable plans for extension of tractor service to all parts to the State.

In future, in all probability owing to rapid industrialisation and implementation of post-war plans of all Departments, it is

likely that the labour problem, particularly for agricultural purposes, may become acute. It is therefore in the fitness of things and also in order to minimise the drudgery of manual labour for all field operations and partly also to enliven the life on a farm for the future educated young men, it is desirable to mechanise our agricultural system as far as possible without upsetting the rural economic balance.

One of the post-war Schemes that will interest our members is the one to collect an enthusiastic band of agriculturists in each district and to conduct them on an agricultural tour to all the Government Farms at government cost. The scheme contemplates selecting one leading practical agriculturist from each Hobli and it is hoped that after the tour, he will be instrumental, in many ways, to lead the others in his Hobli, in improved agriculture and become a model farmer like his counterpart the "Master Farmer" of America. I must congratulate, in this connection, the authorities of the Closepet Rural Welfare Centre for forestalling us in this direction. They have already taken a batch of farmers from the Rural Welfare Centre Villages, to our Government Farms at the cost of the Centre.

It is a happy sign that the members of the public and the Union members are taking a keen interest in the activities of our Department and by their close contact with our district staff are strengthening our propaganda machinery for bringing home to our ryots the fruits of scientific research and improved agriculture. In the Representative Assembly and the Legislative Council and other forums, the generous public are frequently voicing the inadequacy of the staff for district propaganda. I take this opportunity to thank them for their kind support which I very much value. I feel that this kindly and at the same time well informed attitude is an indication of their appreciation of the services rendered by the Department. I may inform the members that I have been striving my best to improve and strengthen the personnel and brighten their prospects.

Mysore is an agricultural country and more than 85% of the population live on agriculture. It is, therefore, very important that our standards of agriculture should be raised to a very high level.

Our farmers should not only apply themselves to their lands faithfully and well but should also bring upon their work the impact of scientific knowledge. I dare say, that given opportunities, our ryots are none too unequal to any body else in the field.

I can assure you, members of the Agricultural Union, that the Department will always be at your service and will strive to help you to the fullest extent in this notable task of rehabilitating our agriculture and raising its standard. In order to strengthen

the links between the Department and the agriculturists and to ensure their continued co-operation, I have been thinking, of how best I could associate some of the leading members of the Union in our Taluk and District work. I have in view the formation of small committees of practical and influential farmers and to associate them in an advisory capacity with the range inspectors and Assistant Directors of Agriculture. These local Committees will be in a better position to gaugé the needs and scope of work in the ranges and circles and offer suggestions and incidentally bring to the notice of the head of the Department any shortcomings they may observe, or any particular problem affecting them.

In conclusion, I wish to say that the destinies of our agriculturists is now in the able hands of our Minister who is pleased to be among us to-day. As you are all aware, he comes from the Malnad and his intimate experience of the practical difficulties of an agriculturist—his woes and sorrows and may I add, Sir, of the pleasures of farming also. It is no flattery on my part if I were to say how desirous and keen he is to sanction any scheme if it is in the interest of the ryot. I am particularly beholden and grateful to him for taking a very keen interest in the development of my Department.

On your behalf and on mine, I once again thank him heartily and also the members of the Union and other distinguished guests who have responded to our invitation.

Speech by S. C. Malliah (Member of the Mysore Representative Assembly), Vice-President, at the Field Day of the Mysore Agricultural and Experimental Union, held at Somanahalli, on 2–3–1947.

President and Friends,

It gives me great pleasure to place before you my report as the Vice-President of the Union. I must say at the outset that I have known and been in the Union since its inception. It is a pleasant duty that devolves on me as being able to present the Union to you as a growing institution; and including subscribers and institutions, I can give our strength in round figures as 3,000. Looking back to the records the number including both non-officials and officials among our members year by year has been roughly as follows:—

1923	..	300	1926	..	381
1924	..	300	1927	..	305
1925	..	305	1928	..	235

1929	..	380	1941	..	254
1930	..	380	1942	..	324
1933	..	254	1943	..	431
1935	..	206	1944	..	1,067
1938	..	117	1945	..	1,445
1939	..	135	1946	..	3,000
1940	..	170			

I am happy to state that the organisation is entirely a non-communal and a non-party one and if there is one body of which the organisation is the expression, it is the body universal of Agriculturists and farmers, and shall I say lovers of soil, plants and live-stock. We have our interests of representing the case of the ryots to Government and to think of co-operation in farming and such business aspects as are conducive to improvement of our local agriculture, but we must not forget the element on which the founder of the association, venerable Dr. Coleman, organised the institution, that of inquisitiveness for knowledge, which in our case resolves to finding out ways and means of increasing the agricultural production of an acre and of a farm. Incidentally, I should think the last two are technically slighlty different problems; the increase over an acre has more of science than economics in it and that over a farm has more of economics than of science in it, which is a case to prove that the two should combine, rather than keep apart.

In recent years we have been brought face to face with the basic reality in agriculture and the principle of growing more food has been crying hoarse in competition with making more money. Without going into figures often quoted, our food deficits have clearly indicated that they can substantially frighten us; and here in Mysore we are dificient in rice and in pulses, and we are importing wheat and wheat products to cover our deficiency in millets. If we look at our cotton production, it is effective enough to indicate that hunger and nackedness go together. Briefly stated, it is a case for improvement on all sides.

I may here give a short review of different factors concerned in increasing production. Irrigation facilities count a great deal. " Irrigation is certainly the most important factor in crop production in the State," so it is stated in the publication,—" Agriculture in Mysore ", and provided water is given, there is no season of the year when crops cannot be raised to perfection in the State. It is also stated that the State at present possesses over 1,000 miles of river channels, 25,000 irrigation tanks and some 40,000 irrigation wells.

The following figures indicate the irrigated area in the State in different decades.

Average in the year	Under tanks	Under channels	Under other sources	Total irrigated
1911 ..	562261	117981	270802	951044
1921 ..	513832	119224	256502	889558
1931 ..	577364	165307	389271	1131942
1941 ..	557503	253440	289102	1100045

The problem of irrigation carries with it two responsibilities that of the state to provide more and more facilities in the direction and that of the ryots not to waste what is provided but to derive the maximum benefit with the minimum quantity of water. An advice in this strain was given in one of the departmental publications: "When you are drawing water on to your field, remember that there are other farmers down the channel." Aptly expressed!

Lift irrigation is an important branch of this subject and the Government have taken a step in the right direction in appointing an officer in charge of wells. Some of our Taluk Committees, especially the Bangalore Taluk Committee, have been pointing to the necessity of a considerable expansion in this regard. A great deal of help should be given to open more wells and deepen those in existence; and power should be more widely distributed for pumping with a regular service for reparing the pumping outfits.

A drive towards self-sufficiency seems to be quite feasible if we look at some yield figures. Let us take paddy for example the improvement of which has been the subject of a five-year plan in the Agricultural Department. The average yield per acre of this crop over more than 30 years as seen from revenue returns is just about 6 pallas of paddy. In considering the possibilities the statement is made in the publication "Agriculture in Mysore" that while the average yield of paddy is 8 pallas per acre, good yields of 20 pallas per acre are even now obtained by careful agriculturists and very good yields go up to 30 pallas per acre. Dr. B. Narasimha Iyengar's results from some large-scale trials on manuring of paddy are very interesting; by judicious manuring and increasing the fertility of the land it has been shown that in an estate the average yield of paddy per acre which was 8·78 pallas per acre in 1924–25 increased to 17·70 pallas per acre in 1943–44. Figures obtained on the Nagenahalli Farm have indicated an increase from about 11 pallas to the acre to about 15 pallas during a decade of proper selection of seed with regular cultivation.

Connected with taking the yields nearer to the possibilities is the supply of seeds, manures and implements by the Agricultural Department.

The following figures indicate the departmental distribution of seeds and manures over a series of years.

Year	Ragi in pallas	Paddy in pallas	Groundnut oil cake in tons	Other manures in tons
23–24 ..	563	170	265	76
24–25 ..	479	1,174	217	304
25–26 ..	313	266	572	410
26–27 ..	327	495	1,812	232
27–28 ..	281	290	53	748
28–29 ..	102	322	..	360
29–30 ..	87	328	12	160
30–31 ..	1,241	251	9	272
31–32 ..	1 317	270	7	38
32–33 ..	764	317	227	952
33–34 ..	229	379	545	479
34–35 ..	466	223	1	940
35–36 ..	223	397	..	95
36 37 ..	169	2537	..	..
37–38 ..	224	446	..	..
38–39 ..	552	1213	..	..
39–40 ..	378	2611	6	106
40–41 ..	415	3645	..	66
41–42 ..	..	1,6380	..	..
42–43 ..	900	1,4100	1,090	307
43–44 ..	1,217	1,0290	3,100	419
44–45 ..	747	1,1995	4,444	986

I would like to place before you a little calculation regarding seeds, Ragi and Paddy. For example, the last figure under annual distribution of Ragi is 747 pallas. Now the seed rate as generally adopted may be taken at 8 seers for dry land Ragi and 2 seers for irrigated Ragi. Let us just take the average at 5 seers of seed per acre. At this rate 747 pallas suffice for 14,940 acres. Add to this five times the area for natural spread, the total area served comes to 89,740 acres, say one lakh of acres in round figures. Then the area under Ragi in the State is annually about 22 lakhs of acres. The last figure under paddy is 11,995 pallas; this at a fair margin could suffice for about 47,980 acres. Add to this five times the area for natural spread, the total area served comes to 2,87,880 or 2·8 lakhs of acres. The total area under paddy is near 8 lakhs of acres. And then, under the conditions of our seed supply, and with the present rate of adoption of improvements by the ryots, we cannot be sure how much we should credit the natural spread with. That indicates the long way we have to tread with regard to our seed supplies.

The planning in this regard seems to be promising but it requires compromise on both sides, the departmental and the public, shall we say a change of heart almost. The department has its scheme of subvention plots to prove the result of the experimental farm, the demonstration plots to convince the ryots on their own fields and 'A' farms to multiply guaranteed seed. The

Union is organising its District, Taluk and Hobli Committees. The two can co-operate substantially and ensure a really effective seed supply for much larger areas than at present. But on both sides the organisation should be considerably developed.

Let us look at the implements. One of the earliest tests made on the holding of our members is that of the improved iron plough. With the annual sales of a certain number of these ploughs and similar implements their number each year will naturally be more than that in the previous year. We see a phenomenal increase in the sales of iron stocks after the department took to supplying cart materials and sundry tools; it has come up to the tune of 10 lakhs of rupees a year. That is service, but while speaking of implements I must refer to an aspect which has been appealing to the agriculturists in a renewed way, that is the use of machinery in agriculture. In this line are use of big tractors and small bull-dozers, power-crushers, electric pumps and machines of sorts. Without going into the discussion of a fairly big subject, I would like to mention that there is good scope for farm engineering and all of us would appreciate articles and utility hints contributed to the pages of our Journal from the Engineering Section, as is done by other Research Sections.

Let me now refer to the problems of the Union. At the outset I must express our heartfelt gratitude to the Government for having enhanced the subvention to Rs. 3,000 and we must request for a continuance of the bounty. The Central Office of the Union comprising the publication of the English and Kannada Journals, the Library and the reading room of the Union, all the correspondence and arrangements connected with a full-fledged system of District,Taluk and Hobli Committees and affiliated associations requires to be very considerably strengthened and we require even a greater support of the Government than now afforded.

We must also appreciate the readiness with which a sum of Rs. 2,000 has been sanctioned for our Library. In my opinion the Union should not only possess the Library at the centre but gradually each Hobli Committee as it is formed should have a library which the progressive ryots of the locality might consult. Before reaching the Hobli, the Taluk may perhaps be taken up. We are accustomed to see in the Taluk Agricultural Depots a number of bottles and tins containing specimens of seeds and manures; and display in several instances of the departmental bulletins and leaflets and one or two charts indicates that there has been an attempt at having show rooms pertinent to the subject. This side of the depot might be considerably developed in view of the fact that we propose to have the depots as centres of activities of the local Union Committees. A part of each Agricultural Depot should be a library, reading centre and show room combined with a demonstration plot wherever feasible. I request the Director of Agriculture to see to this development.

I must thank Mr. K. H. Srinivasan, the present Director of Agriculture, for two of the suggestions he himself has placed before us from time to time. One is the formation of "Grow More Food" Committees in each Hobli. We have now about 38 Taluk Committees of the Union formed and I think these Committees should in turn try to form the Hobli Committees. This would practically give effect to the idea suggested by the Director of Agriculture. Secondly, I should think it the correct thing to have been done, that the Director has suggested to the District Agricultural Officers to consult the local Union Committees when laying subvention plots, demonstration plots and 'A' farms. Some time back when the Managing Committee members of the Union waited on the then Minister of Agriculture in delegation, they asked for the grant under demonstration plots to the Agricultural Department to be enhanced. This is now I believe Rs. 13,000. It should perhaps be doubled. And then there is a challenge to the Union Committees in this regard. It will be poor show if after suggesting an enhancement of the grant, the Committees themselves give no plans of demonstrations of their own or use only a very small portion of this grant. The initial move in all this counts a great deal. May I request the Director of Agriculture to arrange with the District Agricultural Officers to invariably consult the local Union Committees and then lay the demonstration plots and 'A' farms. A guidance may be necessary for some time. I think a much greater grant under this head may be necessary when the Committees are set to this work. The importance of this portion of our work cannot be adequately expressed, as it touches on the very purpose of our Union. The landholders among our members must experiment on seeds, manures, implements and on other projects conducive to better production and send their notes to our journal constantly.

The *Kar ragi* campaign in Mandya this season has touched on another activity of the Union. The Mandya District Committee and the Taluk Committees of Maddur, Mandya and Malavalli and the Village Committees formed for the campaign took up the departmental recommendation and saw to the growing of *Kar ragi* over 6,000 acres under the *Nalas*. The efforts of the District Committee obtained from the Government a grant of Rs. 4,000 to be distributed in prizes to the ryots who grew *Kar ragi*. The Dewan of Mysore graciously presided over the prize-giving ceremony at Mandya on 6–10–1946. It is expected to try for an extension of the *Kar* crop to 25,000 acres next season. Competitions may advantageously be instituted generally and worked as a co-operative enterprise between the Department of Agriculture and Regional Committees of the Union.

Our representation for a site and a building has been made to the Government and I may state that the Union has been organised on a close co-operation with the Department of Agriculture in

such a way that there should not be any difficulty in appreciating our request. The Union has long outgrown the space provided for it, and while appealing to my friends for funds to put up a building I also propose once again to place our request before the Government to extend their help towards a considerable portion of the construction. If our members all over the State make up their minds I envisage each Regional Committee of the Union having its farm and home. And in the interest of a planned agriculture I put it to the Government to help us to achieve the idea.

Two other projects are of common interest to the Department of Agriculture and the Union, (*a*) the publication of agricultural books, and (*b*) the demonstration van. I look for a speedy progress in these directions.

Through all these arrangements I wish to emphasise that it is the greater contact of the agricultural scientist and the practical farmer that we are trying to establish. The Union was founded as an association of these two classes of members. By this rule all the scientific and executive assistants of the Agricultural Department should be our members. I suppose all of them are. If one or two are not our members yet, I appeal to them through the Director of Agriculture. And then the scientific officers of the Department must be enabled to move frequently among the farmers and their fields. If I may be permitted the use of figurative language our local committees should work to the effect that the farmers yield suggestions for research as flowers yield honey juice to the bees and the working officers of the Agricultural Department should move like bees among the farmers. And when the bees move in the orchard with pollen sticking to them they help to fertilise whole orchards; so must the farmer's occupation be enlivened by these contacts. At present the officers of the Department are contributing to the pages of our Journal and so helping us with some knowledge. We sometimes feel vague deficiencies. I am not one of those that would say that the scientists are giving us what we do not want. But I feel the misgivings are due to want of contact. Just how this should be developed, articles from scientific sections as well as field workers, field notes, questions and answers column, etc., I leave to the Board of Editors for consideration. One of the items of work for regional committees is, I believe, the arranging of lectures on various subjects pertaining to agriculture. These ought to be arranged and while I request my friends who are going to be on the Regional Committees to develop this side of their activities and invite the scientific workers of the Agricultural Department, the officers of other Development Departments and such others as they think can suitably give talks, to speak to them. To give the scheme a practical turn I may suggest to the Director of Agriculture that he may kindly instruct his officers to make it a point to deliver these talks

and consider it a part of their work; I do not think he will consider me presumptuous.

I wish to touch upon one point which we raised in one Committee meeting. We thought of holding these meetings in different districts each time. A cultural value may be developed, I believe, by holding these meetings in turn in each one of our Agricultural Schools. One meeting may be held at Hebbal and a meeting each at Ramakrishna Krishi Sala, Chikkanahalli Agricultural School, Somanahalli Agricultural School and the Garudapalya Agricultural School. I am suggesting this as I believe a school and a farm are combined in these institutions. They would be wanting in many respects if teachers and students do not meet there to develop a cultural atmosphere. By holding the meetings there we would be taking advantage of these cultural activities.

There are a number of subjects discussed in our committees like the ones considered by the Bangalore Taluk Committee, for example Co-operative Farming, Grain Reserves, Our live-stock, etc. To me the very discussion of these subjects seems a good bit of work done by the bodies. But I like to think aloud with my friends that there are two further asepcts of the question in case, (1) of appealing to and approaching the concerned authorities, and (2) ourselves organising to do something concrete.

Before closing I should not forget to say a few words in remembrance of friends which perhaps ought to have appeared at the beginning in the orthodox manner. Death has taken its tolls in our midst, Dr. Venkatarao K. Badami, one of the pioneers who started our Union, and who sent his greetings to our Silver Jubilee from Holy Kasi, where he was the Principal of the Agricultural College in the Benares Hindu University, died at Lucknow. Mr. Narayana Reddy, B.Sc., Deputy Director of Agriculture, was also taken away from our midst. Another person whose death I have to mention is that of Mr. Ramaswamy of Goribidanur. He was a member of the Mysore Representative Assembly and in our Union circle he was the Secretary of the Goribidnur Taluk Committee. Our friends over there deriving inspiration from being the members of the Union, have just formed an Agricultural and Marketing Co-operative Society; their enthusiasm to do something practical influenced them to do that. And Mr. Ramaswamy was a good guide to his colleagues. Before the Society was registered he met his death in tragic circumstances. Well, "he who is dead, honour him with remembrance". Turn we from the tale of woe.

Mr. M. J. Narasimhan, who was Director of Agriculture during the war years, during the period when sales in our Agricultural Depots went up by leaps and bounds, and during also the period when the number of our members began to step into four

figures, retired from his official position this July. Of course, we endorse the sentiments of our Bangalore representatives who met him to wish him all happiness. We are also one with them in our expression of regards for Mr. K. H. Srinivasan, the new Director of Agriculture.

I thank you Mr. Chairman for having found time amidst your multifarious engagements to go over here and preside over our function.

Fungous Diseases of Paddy

By S. V. Venkatarayan
Mycologist, Department of Agriculture in Mysore

The most common fungus diseases of paddy in Mysore are three in number, namely *kari kaddi roga* caused by *Ephelis oryzæ*, a leaf and grain spot caused by *Helminthosporium oryzæ*,, and the *benki roga* or blast (brusone) caused by *Piricularia oryzæ*. Of these the *kari kaddi roga* causes less than one per cent. damage although it makes itself conspicuous in the ripening grain by the curious malformation it causes on the earheads which it converts into *mathapkaddis* or *oodubattis*. The *Helminthosporium* disease is a little more serious than this, but it can be controlled by seed treatment. The *benki roga* is the worst of all the paddy diseases and runs through the field like fire as its name indicates. It can be very serious in some years, and in other years it does not cause much damage, but it merits serious consideration in view of its capacity for destruction of the crop.

The *benki roga* appears in two or really three forms, one as spots on the leaves and leaf-sheaths, secondly as a rot in the neck or base of the earhead whence it is also called "rotten neck" and thirdly as greyish spots on the grains themselves. The fungus is also known to cause a foot rot or seedling blight and root rot, although this phase has not been noticed in Mysore. When the grains and earheads are affected a high percentage of chaff results. There are other diseases also which convert the grains to chaff, particularly the insect disease caused by the stem-borer but there is no chance of confusing the *benki roga* with the borer attack, as in the *benki roga*-affected earhead there will be some full grains, whereas in the borer infestation the whole earhead is usually converted into chaff, and stands out rather whitish in contrast to a dull normal earhead.

The reasons for the intensity of the *benki roga* in some years are to be looked for in the natural behaviour of the fungus and its reactions to the environment. As in the case of several fungi, the *benki roga* fungus is also supposed to have a number of physiological races each capable of attacking only one or a few particular varieties, and each race predominant in a particular locality or localities, so that a variety that is susceptible to the disease in one place may be resistant to it in another place, and hence the problem of breeding disease-resistant varieties against the disease is complicated. This peculiar behaviour of the fungus is a pointer to us because it shows that we may not extend the cultivation of a variety in any place before we ascertain by experiment whether it is suited to the locality or not.

A few facts in its life-history are worth recalling here. It has been proved by experiment in Japan and elsewhere that the leaves of seedlings at 28° C. are most resistant and that the infection increases till 20° C., the lowest temperature tested, and hence the disease is apt to occur more abundantly in places where cold water is running in or springing up than in other places. The leaves require to be continually wetted for infection, which takes place in about six hours. Sunlight inhibits infection. The fungus requires a very high relative humidity, near saturation point, for successful infection. Infection does not take place even in air showing 100 per cent. relative humidity if the plants are held in such air after the drops of the sprayed spore suspension have dried.

The disease persists in the soil and in the straw. Nitrogenous manures favour the development of the disease. The addition of potassium chloride to a fertilizer consisting of farmyard manure, superphosphate and ammonium sulphate is supposed to prevent the disease. So also lime and gypsum. On heavy soils there must be moderate drainage, but drainage of sandy fields leads to the spread of the disease.

Fortunately for us there are some varieties resistant to *benki roga*. The varieties Adt. 6 and Co. 4 are resistant. Similarly Co. 15 and Co. 16 are resistant in some years though susceptible in some others. They have been found valuable for the Nellore, Cuddappah and Coimbatore districts of Madras and Mtu. 16 for the low-lying areas in Godavari and Kistna deltas. These five varieties are being tested at Nagenahalli and Hebbal. The time of planting influences infection. September planting has been found to show the highest incidence of the disease for all varieties at Coimbatore. Resistance to the disease follows Mendel's laws of inheritance. It has been found in Japan that the species of paddy with 24 chromosomes like *Oryza sativa* are susceptible to infection by *Piricularia oryzæ* while those with 48 chromosomes like *Oryza latifolia* and *Oryza minuta* are highly resistant and that the first generation progeny of the cross between *Oryza sativa* and *Oryza minuta* are equally resistant with the latter parent.

Hints on Coconut Cultivation in Mysore

By Dr. L. S. Dorasami, M.Sc. (Lond.), Ph.D. (London)
and
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Introduction

The present shortage in fats and oils is global. Economists opine that it is likely to remain as such for some time to come. In India, the value of vegetable oils and oil-seeds has rocketed sky high. Consequent to the very high prices obtained, a considerable interest in the crop has been aroused; much of recent planting is in evidence and more contemplated in the near future.

The Indian Central Cocoanut Committee constituted recently is representative of all interests concerned. The activities of this body is certain to guide and foster the development of the crop and associated industries, into normal and healthy channels. Meanwhile, the Government is taking commendable measures to bring down the value of nuts, copra and oil in the interset of national economy. It is hoped that this short note is timely and topical.

Success in the raising of the palms entails three essential prerequisites. These are a suitable site, choice seed material, and efficient management. As the palms are perennial and their establishment involves a heavy outlay of capital, neglect of any one of the above entails heavy loss and irrepairable damage.

Land

The prime essential in the choice of a site, is constantly available and adequate soil moisture for an uninterrupted growth of the palms. The supply of water may be either derived from a well-distributed rainfall or by percolation of underground water which is constantly on the move. Naturally, the ideal soil is a deep friable loam. If the rainfall happens to be either insufficient or ill-distributed, the plantation is best situated on a gently shelving slope. If the slope happens to be considerable, a northern exposure would be highly desirable.

Land with a very low water-table suffering from excessive dryness or lack of waterholding capacity or faulty drainage should be avoided. These drawbacks can be alleviated by judicious irrigation and drainage. Where such measures are deemed necessary they naturally enhance the initial outlay and subsequent maintenance.

Seed Nuts

Since the palms have a fruitful life of 70 to 80 years, it is but natural that one should have the very best of them. There shoul

be no sparing of either effort or cost in obtaining the requisite quality of seed nuts or seedlings. Any neglect in this respect cannot be remedied later, when once the palms have been established.

Well managed and dry farmed plantations should form the source of seed nuts. The mother trees must be vigorous, hardy, consistently heavy bearing and of prime age, say 30–40 years. Palms either too young or old are best left out. The trunk should be stout, straight and cylindrical. Palms with a pronounced swollen base, with mis-shappen trunks or with boles of perceptably varying diameter should be avoided. The leaf-scars or rings should be bold, close set and of generous proportions. The individual scar should be wide and extend round the stem as much as possible. The crown should be of healthy hue, thick set and umbrella like. The mother palms should desirably possess the maximum number of leaves with short, broad and thick stalks. Like the leaves, the flower bunches must also be numerous and as far as possible, be located, immediately above a leaf. This provides the very necessary support for the fruit bunches which mature later. The stalk of the bunch should be stout and not buckle or bent. Finally the mother palms must not be situated in favoured localities, and bear sound nuts of medium size.

Seed nuts must be gathered when fully ripe and at least twelve months old. The harvest operation should avoid all possible injury to the nuts. In a bunch the few bottom nuts are not used. The remaining ones will serve as seed provided they contain small quantity of water and the kernels do not rattle when the nuts are shaken. Usually seed nuts are gathered during December-March. After harvest the nuts should have a rest period of at least one month. During this time they are best allowed to lie on a thin bed of sand, three inches of depth, in a cool place and under cover. Later more sand may be heaped over the nuts, so as to just cover the entire lot.

Nursery

Meanwhile preparations should start for the nursery. It is better to select a sandy plot within close proximity of a water source. If sandy soils are not available, the seed bed should be prepared out of sand, by digging and removing the original soil to a depth of about 18 inches and filling it up with fresh sand and raising the bed to a height of six inches above ground level. If one has to raise a large nursery in non-sandy soils and if the transport of sand proves costly, the soil of the nursery area may be made as much sandy as possible by adding all available sand and creating good drainage all round. Addition of sand not only creates good drainage but also prevents attack of whiteants. The nursery beds may conveniently be 5 ft. wide and 40 ft. long. Selected seed nuts should be placed on the sand bed with a spacing of

about a foot or a foot and a half from nut to nut. The position of the nut should be erect with the stalk end up. About an inch of the tip should protrude above the surface. In the absence of rains the beds should be watered daily or on alternate days depending upon the moisture-content of the soil. To keep the bed surface moist, a mulch of straw may be provided taking care that no whiteant or any injurious insects are harboured therein.

The nuts will start germinating in about 4 to 5 months under normal conditions. Some will start germinating in about three months. It is undesirable to manure the nursery. Manuring will mask the appearance of inherently weak seedlings and later come in the way of selecting individuals that are vigorous by inheritance. The nursery should be allowed to grow for one full year.

The age of the seedling to be transplanted depends upon the nature of the land. If the land has irrigation facilities year-old seedlings can directly be transplanted into the plots, or if the cocoanut palms have to be grown under dry conditions, three-year old seedlings which are locally known as " Geppe Sosi " are planted. In both the cases, the seedlings should be selected, before they are finally transplanted into the field. The selected ones should be healthy, vigorous and bear as many leaves as possible. The base of the young plant should be thick and firm. Seedlings that show a quick germination and early leaf-splitting should always be selected as these are bound to be vigorous and early bearers. Seedlings that are lean and lanky, those that germinate late and those that look stunted and unhealthy should be rejected.

When " Geppe " seedlings are required, year-old seedlings from the nursery are pulled out and transplanted into a second nursery with a spacing of 3 ft. from plant to plant both ways. In the second nursery, the plants are allowed to grow for two or three years and later transplanted into fields with a big ball of earth intact with roots.

Planting

The young plants whether " Geppe " or ordinary, should be transplanted in straight rows with regular and even spacing in between, as this will facilitate proper cultural operations. On fertile land with good soil moisture the maximum number of trees per acre under Mysore conditions is fifty and the spacing from plant to plant will be 30 ft. both ways. Under ordinary dry land conditions one seedling for each gunta of land is planted. In this case the spacing would be 33 ft. both ways. Two or three months prior to the planting pits three feet cube should be dug at regular intervals of 30 or 33 feet as the case may be and allowed to weather. The sides and the bottom of the pits should be charred by burning trash. This will not only sterilise the pits but also prevent the attack of whiteants. One-third of the pit should be

filled with fresh earth and sand and on this the cocoanut seedling transplanted erect and the rest of the pit filled up with a mixture of fresh earth, sand and well rotten farmyard manure. If there is a fear of root grubs and rhinocerous beetle, farmyard manure need not be added to this mixture. The soil round each transplant should be made firm by pressing it hard. After this, all the leaves of the young plant which have spread out are brought together and wrapped by means of tape-like strips which are made by tearing the locally available agave leaves. To prevent the attack of rodents and the ravages of stray cattle sticks from some wild plants like Dodonia or Toddy palm leaves are tied round each seedling and the whole plant is propped by a stout support nearby. During the first year the transplanted seedlings should be watered twice a week in the non-rainy season. During the second year watering may be done once a week during the dry season. Generally watering is discontinued from the third year onwards.

Management

The garden should be laid out into a number of convenient blocks with proper bunds and drains for excess water. The soil should be well cultivated and kept free from weeds. Three ploughings during *Mungar* rains and four in *Hingar* should be given and a fine mulch maintained. A green manure crop of gram or any other legume should be raised and ploughed in annually. Well rotten cattle manure at the rate of 100 lbs. per tree should be broadcast and worked into the soil. But whenever cattle manure is added, one should be very careful of the rhinocerous beetle. As inter-crops Ragi, Jola or dry Paddy can be grown, inbetween the palms and young seedlings. Pulses are about the best as intercrops because of their soil renovating nature. Whenever intercrops are taken the garden should be well manured. Regular cultivation and manuring every year is quite essential for a cocoanut garden. The neglect of this even for an year will reflect adversely for a period of three years subsequently.

Yield

On fairly good soils the cocoanut palms will start flowering in about seven or eight years after planting and normal yields can be expected by about five years from the commencement of first flowering. Flowering is delayed in palms that are planted on poor soils. The yield in a well cultivated garden can be as much as 60–70 nuts per tree per year. Under ordinary conditions the yield will be about 50.

Our sincere thanks are due to Mr. K. Gopala Iyengar for help and suggestion in the preparation of this manuscript.

Correspondence

To

THE EDITOR,

THE MYSORE AGRICULTURAL JOURNAL,

BANGALORE.

SIR,

I have read with some interest the two articles in the *Journal* on wild fodder plants of Mysore by Messrs. K. Gopala Iyengar and S. G. Narasimhachar, Vol. 23, No. 4, pp. 149–158, 1945; and Mr. R. L. Narasimhaswamy, Vol. 25, Nos. 1 and 2, pp. 21–24, 1946–47, and should like to add a few notes of general interest. I notice that the writers while furnishing a fairly exhaustive list have omitted the plant *Saccopetalum tomentosum* (known as *Hessare* in Mysore District and *Ubalu* in Kadur and Shimoga Districts) and belonging to the Anonaceæ. Rao Sahib M. Rama Rao in his *List of Mysore Forest Trees*, p. 3, 1919, says that the leaves are used as cattle fodder, and adds that Cameron recommends this tree for avenues in the Malnad and that the wood may be found suitable for pencils. Hence this tree deserves to be exploited more widely than is being done at present.

Turpinia nepalensis Wall. (*T. pomifera* D.C.) is dismissed with the remark that the leaves are fed to buffaloes. Rao Sahib M. Rama Rao says that the leaves are given as fodder to cattle. Because a distinction is sought to be made between fodder for cattle, buffaloes and sheep, a misunderstanding might arise as to its value for fodder purposes, and it is worth while to clear up the position. An additional recommendation for this tree is its value as a honey plant. Prof. P. F. Fyson in *The Flora of he Nilgiri and Pulney Hill-tops*, Vol. I, p. 91, 1915, says of this plant, "honey is secreted and collects inside the cup formed of the unusually high disc, and the secretion appears to be freer when the latter is stimulated by being touched as it would be by insects visiting the flower".

S. V. VENKATARAYAN,
Mycologist.

Proceedings of the 27th General Body Meeting of the Union

The Twenty-seventh General Body Meeting of the Mysore Agricultural and Experimental Union was held on 2–3–1947 at Somanahalli with Mr. K. H. Sreenivasan, Director of Agriculture and President of the Union, in the Chair. About 130 members from all the Districts were present.

After invocation the report for the period ending 30th June 1946 was presented by the Secretary.

Secretary's Report

Our membership has increased since last year as follows:—

	Last year	*Now*
Kannada Members	1,188	2,870
Subscribers—		
Middle Schools	30	37
Village Panchayats	16	23
Individuals	13	16
Affiliated Associations ..	38	48
English Members—		
Officials	153	155
Non-Officials	104	122
Subscribers	50	65
Exchanges—		
Kannada	14	14
English	100	100

It is seen from the financial statements of last year that the expenditure of the Union amounted to nearly Rs. 9,000 (statement appended).

The estimate of expenditure taking into consideration the expanded activities comes to about Rs. 15,000 as detailed in the statement attached.

This year as well as in the last year Government graciously sanctioned a subvention of Rs. 3,000 towards the routine expenses and this year they have sanctioned a further amount of Rs. 2,000 for forming a *Union Library* on condition that a similar sum be spent on this from the collected funds of the Union.

Two particular points were touched upon during the audit as requiring attention: (1) collection of arrears from members and (2) placing a certain portion of collections in fixed deposit for the stability of the Union. Regarding point (1), arrear lists are being prepared and sent to the Assistant Directors of Agriculture and regarding point (2), an amount of Rs. 800 is now placed in fixed deposit in Government Savings Bank.

The Union depends on the help of the District Agricultural Officers not only to enrol members and in the collection of arrears but to co-operate in the formation of Regional Committees. One of the

important functions of these committees is to give their programme of experiments to the District Agricultural Officers so that they may be arranged on the holdings of the members. It is a standing request from the Union to the Government to allot a commensurate budget for their co-operative experiments.

We have now three District Committees, 38 Taluk Committees and 7 Hobli Committees, as against 1 District Committee and 9 Taluk Committees last year and we are only waiting for the District Agricultural Officers to spare us time to see to the formation of the rest.

Representation has already been made that a building is quite necessary for the Union to have the library, the reading room, the office and other branches. The Minister for Agriculture kindly paid a visit to the present premises and has promised relief.

It may be interesting to note the activities of a few of our Regional Committees. Interesting topics have been discussed by all the Committees in their meetings. The Bangalore Taluk Committee has held several of its meetings on the holdings of the Committee members. The Regional Committees of the Mandya District have greatly helped in the Kar Ragi campaign and taken a leading part in arranging for the distribution of prizes to the extent of Rs. 4,000 sanctioned by Government to Kar Ragi growers. As a move from the Taluk Committee at Goribidnur, a Co-operative Society has been formed there under the name "The Goribidnur Taluk Union Agricultural and Marketing Co-operative Society".

The Union journals are being published regularly though the want of articles is still being felt.

With this I present the report of the Union.

Statement of Receipts and Payments for the year 1945–46

RECEIPTS	Rs.	A.	P.	PAYMENTS	Rs.	A.	P.
Opening Balance—				Establishment ..	2,199	6	0
On Hand .. Rs. 22 3 0				Travelling ..	69	6	0
At Bank .. 861 13 2				Postage ..	597	2	0
	884	0	2	Bangalore Press ..	4,200	12	0
				Contingencies ..	231	4	7
Admission Fees ..	674	0	0	Stationery ..	84	1	0
Membership Fees—				Audit Fee ..	25	0	0
Arrears and Current 1,989 14 0				Field-Day Expenses ..	915	0	0
Advances .. 719 13 0				Library ..	33	0	0
	2,709	11	0	Furniture (Iron Safe) ..	76	0	0
Subscriptions—				Membership Fee (C. O. Returned)	8	0	0
Arrears and Current 140 13 0				Closing Cash—			
Advances .. 66 8 0				On Hand .. Rs. 276 14 5			
	207	5	0	At Bank .. ,, 67 5 2			
Advertisement Charges ..	253	12	0		344	3	7
Annual General Body Meeting and Field-Day Donations ..	296	0	0				
Miscellaneous ..	398	7	0				
Government Subvention ..	3,000	0	0				
Life-Membership Fee ..	360	0	0				
TOTAL ..	8,783	3	2	TOTAL ..	8,783	3	2

Statement of Income and Expenditure for the year 1945–46

EXPENDITURE	Rs.	A.	P.	INCOME				Rs.	A.	P.
Establishment Charges Paid ..	2,199	6	0	Membership Fee	5,525	2	0			
Do Payable ..	203	0	0	*Less* Refund ..	8	0	0			
Travelling ..	69	6	0					5,517	2	0
Postage ..	583	8	0	Subscriptions ..				220	8	0
Printing ..	4,337	5	0	Advertisement Charges ..				318	0	0
Contingencies ..	231	4	7	Printing ..				115	3	0
Stationery ..	84	1	0	Annual Meeting and Field Day						
Field-Day Expenses ..	951	0	0	Donations ..				296	0	0
Audit Fee ..	25	0	0	Afftd. Association						
Depreciation (Furniture) ..	13	5	6	Fee ..	385	0	0			
Excess of Income over Exp. ..	958	15	11	*Less* Advance ..	245	0	0			
								140	0	0
				Miscellaneous ..				13	7	0
				Government Subvention ..				3,000	0	0
GRAND TOTAL ..	9.620	4	0	GRAND TOTAL ..				9,620	4	0

Balance Sheet as on 30*th June* 1946

LIABILITY	Rs.	A.	P.	ASSESTS				Rs.	A.	P.
Fund ..	1,253	10	0	Cash on Hand	Rs. 276	14	5			
Admission Fee ..	674	0	0	At Govt. S. B.	,, 67	5	2			
Life Membership ..	685	0	0					344	3	7
Bangalore Press ..	1.577	5	0	Postage Stamps ..				16	9	3
Establishment Payable ..	203	0	0	Furniture ..				240	10	6
Subscriptions in Advance—				Library ..				303	15	0
Membership Rs. 719 13 0				Arrears due—						
Subscription ,, 66 8 0				Membership	Rs. 5,603	6	0			
	786	5	0	Subscription	,, 114	2	0			
Afftd. Associations ..	245	0	0					5,717	8	0
Income and Expenditure A/c—				Advertisement Charges ..				111	12	0
Excess of income upto 30-6-1945	466	8	8	Printing ..				115	3	0
Excess of income over expendi- for 1945–46 ..	958	15	11							
GRAND TOTAL ..	6,849	13	4	GRAND TOTAL ..				6,849	13	4

I have examined the above Balance Sheet with the books and vouchers maintained in the Union and have obtained all the information and explanations required. In my opinion such Balance Sheet has been drawn up correctly and exhibits a true and correct view of the state of affairs of the Union as on 30-6-1946 according to the best of my information and the explanations furnished and as shown by the books of the Union.

BANGALORE,
25*th August* 1946.

(Sd.) S. A. GANGADHARA SASTRY,
Govt. Certified Auditor.

The report was thrown open to discussion.

Mr. H. K. Madiah opined that the Union should be a non-official body.

Mr. T. Madiah Gowda said that the number of members should be further considerably increased, that all the Regional Committees should be started and that Agricultural Inspectors should take initiative in this regard. He considered that the English Journal might be dropped and the Kannada Journal should be improved.

Mr. Javariah of Nagamangala said that the Journal should be illustrated more profusely.

Mr. B. Huche Gowda of Banasandra and Mr. Chudegowda of Closepet also spoke about the Journal and said that it should be arranged to be sent to all the Village Panchayats and permission should be obtained to post it on service.

Mr. Chudegowda of Closepet regretted the belated circulation of the Secretary's report, as it did not afford an opportunity for critical study. He desired that it should be promoted and supplied to the members well in advance so that a useful and faithful discussion may follow.

After Mr. M. L. Linganna spoke in support of the above suggestions the Vice-President thanked all the members who participated in the discussion. He said that permission had been obtained to increase the size of the Kannada Journal to 30 pages against that of 12 pages till latterly. The members were not unaware of the limited supplies of paper even at the present day and therefore they would agree that this increase in size was a recognizable step in the usefulness of the Journal. He would assure members that further improvements would be taken up immediately the supply position improved. Regarding the Union being wholly non-official, he was surprised that there could be any question as the Union is even now a non-official body and the Departmental co-ordination is necessary and tolerated in the interest of the agriculturists themselves who stand to benefit. Regarding printing also the non-official element is kept uppermost, the Journal being now printed in the Bangalore Press. He quoted the rise in membership from the beginning of the Union and said that nobody had any difference of opinion as to the increase from 3,500 to 10,000 for example. He referred to the inspection by the Minister of the present Union premises and said that better accommodation was promised.

The Secretary's report and estimate of expenditure for 1946–47* were then adopted.

A resolution of loyal felicitation to His Highness the Maharaja of Mysore on the birth of a daughter Princess Gayatri Devi was adopted.

A resolution of appreciation of services rendered to the Union by Mr. M. J. Narasimhan, Retd. Director of Agriculture and President, adopted with sincere acknowledgements.

Elections were then held to the Managing Committee, the Editorial Board and the *Ad Hoc* Committee .for the revision of constitution and rules.

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* Establishment, Rs. 3,500; Printing, 6,000; Postage, 600; Field Day, 1,000; Regional Committees, 1,500; Books and Stationary, 2,100; Contingencies, Depreciation and Audit Fees, 420; Total Rs. 15,120.

Condolences were passed, members standing, regarding the demise of Mr. M. Narayana Reddy, late Deputy Director of Agriculture, Mr. Ramaswamy, late Secretary of the Goribidnur Taluk Committee, and Dr. V. K. Badami, late Principal of the Agricultural College, Benares Hindu University.

Managing Committee

President—

1. Mr. K. H. Srinivasan, M.A., B.Sc. (Edin.), Director of Agriculture, Bangalore.

Vice-President—

2. Mr. S. C. Mallaiah, M.R.A., Somanahalli, Maddur P.O.

Ex-Officio—

3. Dr. P. M. Narayanaswamy Naidu, B.Sc., L.V.P., Sc.D. (Ger.), F.F.A.S. (Fr.), Department of Animal Husbandry and Veterinary Services, Bangalore.
4. Dr. B. T. Narayanan, B.A., Ph.D., Deputy Director of Agriculture, Bangalore.

Members—

Messrs.

5. Chude Gowda, M.R.A., Bannikuppe, Closepet Taluk.
6. N. R. Chikkanna, R.A. and District Board Member, Rayarekarahally, Thondebhavi Hobli, Goribidnur Taluk.
7. N. H. Masti Gowda, Yedavane, Amruthur P.O., Kunigal Taluk.
8. T. V. Thimmappa, V.P. Chairman, Gandasi P.O.
9. B. S. Madhava Rao, Koppa, Kadur District.
10. Gowda Sivappa, Kalpanahally, Davangere.
11. A. R. Badrinarayan, M.L.C., Anandapuram.
12. Sardar Rajasevasakta M. P. Subramanyaraj Urs, T. Narasipur Road, Mysore.
13. M. L. Linganna, M.R.A., Mandya Town.

Secretary—

14. M. Vasudeva Murthy, B.Ag., Department of Agriculture, Bangalore.

Editorial Body

Chief Editor—

Mr. K. H. Srinivasan, M.A., B.Sc. (Edin.), Director of Agriculture, Bangalore.

Associate Editors—

Messrs.

S. Venkatasubbaiah, B.E., Agricultural Engineer.
B. Krishna Murthy, B.Sc., Entomologist.
Dr. P. M. Narayanaswamy Naidu, B.Sc., L.V.P., Sc.D. (Ger.), F.F.A.S. (Fr.), Superintendent, Department of Animal Husbandry and Veterinary Services, Bangalore.
Dr. B. T. Narayanan, B.A., Ph.D., Deputy Director of Agriculture, Bangalore.
Dr. L. S. Doreswamy, M.Sc. (Lond.), Ph.D. (Lond.), Economic Botanist.

Messrs.

B. V. Venkatacharya, B.Sc. (Agri.), Alakere, Mandya.
S. V. Sharma, Senior Assistant Botanist.
C. V. Ramaiah, Tobacco Superintendent.
T. Madaiah Gowda, B.A., LL.B., M.L.C., Advocate, Closepet.
B. Hutche Gowda, M.R.A., Banasandra, Tumkur District.
M. Vasudeva Murthy, B.Ag., Secretary and Editor of Kannada Journal.

***Ad Hoc* Committee**

Messrs.

S. C. Mallaiah, M.R.A., *Somanahalli*, Maddur P.O. (*Chairman*).
Dr. B. T. Narayanan, B.A., Ph.D., Deputy Director of Agriculture, *Bangalore*.
S. Srinivas, F.R.H.S., 24, Veeranna's Garden, Clevaland Town, *Bangalore Cantt*.
G. S. Subbaratnam, 'Lalita', M. N. Krishna Rao Road, Basavangudi P.O., *Bangalore City*.
T. Madaiah Gowda, B.A., LL.B., M.L.C., Advocate, *Closepet*.
H. K. Madaiah, Zamindar and Municipal Councillor, *Malavalli*.
M. Vasudeva Murthy, B.Ag., Secretary, Agricultural and Experimental Union, *Bangalore*.

The General Body then considered the appointment of an Auditor for the ensuing year and empowered the incoming Managing Committee to call for applications and select a suitable candidate.

For want of time the subjects sent by members could not be taken up. Mr. T. Madaiah Gowda moved that the subjects be left to be considered in detail by the incoming Managing Committee and suitable action taken on all of them. Mr. H. K. Madaiah in seconding opined that the subjects were very important and stressed that the Managing Committee should take them up. The motion before the House was then adopted.

In concluding the deliberations of the day, the President (the Director of Agriculture) thanked all the members for their lively interest and their valued criticism for the betterment of the Union. He was obliged to them, he said for their suggestions regarding the improvement of the journals but differed from them regarding the publication of the English Journal. He said that it was extremely valuable in establishing exchanges and maintaining contacts with institutions and journals from all over the world. He thanked Mr. S C. Mallaiah for the excellence of the arrangements made for holding the Field-Day at Somanahalli.

With a vote of thanks to the Chair, the meeting adjourned for assembly in connection with the Field-Day Celebrations.

M. V.

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